Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – WINTER 2023

Subject Code:3162607 Date:05-12-2023

Subject Name:High Performance Elastomers

Time:02:30 PM TO 05:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

Q.1	**(a)**	Mention major properties of High Performance Elastomers.	**03**
	(b)	Write about effect of RBD content on Hydrogenated Nitrile Rubber.	**04**
	(c)	Give synthesis reaction for Hydrogenated Nitrile Rubber. Compare its chemistry and characteristics with Nitrile rubber.	**07**
Q.2	**(a)**	Give importance of Metal Oxide in compounding of Viton.	**03**
	(b)	Mention important types of Fluorocarbon Elastomers.	**04**
	(c)	Describe in detail about manufacturing of Fluoro Elastomers.	**07**
		OR	
	(c)	Write in detail about various curing systems used for Fluoro Elastomers.	**07**
Q.3	**(a)**	Give synthesis reaction for Chlorinated Polyethylene (CM).	**03**
	(b)	Write about Compounding of Chlorinated Polyethylene.	**04**
	(c)	Explain about production of Chlorosulphonated Polyethylene Elastomer.	**07**
		OR	
Q.3	**(a)**	Give synthesis reaction for Chlorosulphonated Polyethylene (CSM).	**03**
	(b)	Write about Optimum Chlorine content and its significance for Hypalon.	**04**
	(c)	Describe in detail about curing, properties and applications of Hypalon.	**07**
Q.4	**(a)**	Mention basic types of Epichlorohydrin Elastomers with the name of respective monomers.	**03**
	(b)	Write about compounding of Epichlorohydrin rubber.	**04**
	(c)	Write in detail about major types of Polysulfide rubber.	**07**
		OR	
Q.4	**(a)**	Compare basic types of Epichlorohydrin Elastomers.	**03**
	(b)	Write about properties and applications of Epichlorohydrin rubber.	**04**
	(c)	What is Sulfur rank for Polysulfide rubber? Write its influence on properties of Thiokol.	**07**
Q.5	**(a)**	Give synthesis reaction for Ethylene-Vinyl Acetate rubber (EVA).	**03**
	(b)	Give synthesis reaction for Ethylene-Acrylic rubber (AEM).	**04**
	(c)	Explain in detail about compounding, properties and applications of Polyacrylate rubbers (ACM).	**07**
		OR	
Q.5	**(a)**	List important properties and applications of Ethylene-Vinyl Acetate rubber (EVA).	**03**
	(b)	Write about compounding, characteristics and applications of Vamac.	**04**
	(c)	Draw the structures of different monomers and cure site monomers used for Polyacrylate rubbers (ACM).	**07**

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